

REMARKS

In the Final Office Action dated September 28, 2007, it is noted in the Office Action Summary that claims 1-4 and 9-11 are pending and that claims 1-4 and 9-11 stand rejected under 35 U.S.C. §103. It should be noted that claim 4 was previously withdrawn from consideration in the prior response received electronically in the USPTO on June 25, 2007.

By this response, claim 12 has been added. Support for this claim is found in the original specification at page 8, lines 22-25. No new matter has been added.

Rejection of Claims 1-3 and 9-11 under 35 U.S.C. §103

Claims 1-3 and 9-11 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent 5,882,827 to Nakao (hereinafter “*Nakao*”) in view of U.S. Patent 6,045,954 to Dai (hereinafter “*Dai*”) in view of U.S. Patent Application Publication No. 2002/0061452 to Nozawa et al. (hereinafter “*Nozawa*”). This rejection is respectfully traversed.

Claim 1 is an independent claim. Claim 2-3 and 9-11 depend directly from claim 1 and include all the limitations thereof.

Nakao is directed towards a phase shift mask that has phase shift portions of both Levenson type and halftone type. It is stated on page 2 of the present Office Action that, “Nakao does not teach that the half tone layer comprises silicon nitride.” In order to cure this defect in the teachings of Nakao, Dai has been introduced wherein it is stated also on page 2 of the Office Action that, “Dai teaches the composition of a half tone mask ... being a silicon rich nitride layer with 60% nitrogen”.

But, contrary to the assertion in the present Office Action that Dai teaches a silicon rich silicon nitride material layer, it should be understood that Dai is directed towards a half tone phase shift mask material having a layer of nitrogen rich silicon nitride. *See the Dai’s Abstract at line 2 as well as the specification at col. 2, lines 45-47, col. 3, lines 11-12 and lines 63-66.* In fact, Dai clearly teaches away from the use of silicon rich silicon nitride at col. 2, lines 12-16, where he states that, “[w]hile these optical values for **silicon rich films** are attractive, other properties of the silicon rich films, such as UV stability and etch characteristics, **make them unattractive for use within an integrated circuit manufacturing process.**” [Emphasis supplied].

Dai also lacks any teaching or suggestion about the realization of a transmittance in the range of 20% to 80% as defined in the claims. As shown in his Figure 6 and as stated in his specification at col. 4, lines 20-22, it is clear that Dai realizes “a transmittance of about 10% (which is between 4

and 15%).” At col. 2, lines 53-56, Dai states that this is a required range for the transmittance property. Obviously, the transmittance realized by Dai is well outside the range defined in the present claims. The lack of teaching in this regard for both Dai and Nakao is recognized on page 3 of the present Office Action.

Nozawa was added to Nakao and Dai, according to the present Office Action at page 3, because “Nozawa [sic] teaches a mask having a transmittance of 65%”. But Nozawa does not teach, show, or suggest the use of a silicon rich silicon nitride for the half tone material in the half tone layer. Thus, the combination of Nozawa with Nakao and Dai still lacks any teaching, showing, or suggestion that the half tone material should be silicon rich silicon nitride.

From all the remarks above, it is submitted that Nakao, Dai, and Nozawa do not teach, show, or suggest all the elements in the independent claim and the claims dependent thereon. In light of the remarks above, it is believed that the subject matter defined in claim 1 and the claims dependent thereon would not have been obvious to a person of ordinary skill in the art upon a reading of Nakao, Dai, and Nozawa, either separately or in combination. Thus, it is submitted that claims 1-3 and 9-12 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that all the claims pending in this patent application are in condition for allowance. Entry of this amendment, reconsideration, and allowance of all the claims are respectfully solicited. In the event there are any errors with respect to the fees for this response or any other papers related to this response, the Director is hereby given permission to charge any shortages and credit any overcharges of any fees required for this submission to Deposit Account No. 14-1270.

Respectfully submitted,

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